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CULMINATING EXPERIENCE COVER PAGE

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Culminating Experience Paper or Project Title: Evaluation of Nutrition Program in Fond des Blancs, Haiti

Abstract:
The Saint Boniface Haiti Foundation nutrition program aims to reverse the damages of under-nutrition in children 6 to 59 months in Fond des Blancs, Haiti. The program provides supplemental food donation and nutrition counseling; however, initial observations showed that the children enrolled were not gaining weight but rather tended to lose weight while in the program. This paper presents the findings from the program evaluation.
A semi-structured questionnaire was used to interview 45 mothers and other qualitative data were collected during home visits, hospital rounds and vaccination trips. The evaluation revealed several limitations to the program, mainly a lack of physical health monitoring, measurement errors, and insufficient food going to the enrolled children.
This paper proposes, among other things, that Saint Boniface Haiti Foundation identify mother child pairs that are doing well and use them as counselors, train the staff to recognize sources of errors and minimize them, and track both the growth and physical health of the children enrolled.
These recommendations can help to correct the limitations of the program and facilitate the children's successful rehabilitation.

Key Words: under-nutrition, nutrition counseling, supplemental food donation, growth monitoring, positive deviance, complementary foods.

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Introduction

Malnutrition is a significant problem in Haiti, especially in the rural areas where erosion, deforestation and seasonal floods due to tropical storms have limited the Haitian people's ability to carry out minimal subsistence farming. Saint Boniface Haiti Foundation aims to help the people of Fond des Blancs and the surrounding areas cope with both social and environmental adversities. The Nutritional Recuperation Program implemented by the foundation has recently seen an increase in their enrollment rate that far exceeds program capacity, and the number of children who successfully graduate is very low. A recent evaluation revealed several weaknesses to the program's structure. This policy brief presents these findings and makes recommendations to help address these weaknesses. SBHF plays an instrumental role in reversing the damages of under-nutrition in pre-school children in Fond des Blancs. The foundation would be able to reach a larger number of under-nourished children if these limitations were addressed.

The Socioeconomic Situation in Haiti

In 2008, Haiti sustained substantial damage and disruption from a succession of tropical storms Fay, Gustav, Hannah and Ike. The consequences for the already resource-poor nation were dire. Farmers lost crops and livestock; over 700 people died and another 150,000 were internally displaced. The Haitian government estimated it would need $400 million over 18 months for recovery and reconstruction projects [1]. Haiti is chronically food insecure and dependent on import and bilateral food donation. The country received 126,000 tonnes of grain donation in 2007 and continues to import more than 40 percent of its diet [2, 3]. Market prices for food commodities such as grains and vegetable oils rose more than 60 percent in just over two years in 2008[2] further aggravating the situation for millions of Haitians who before were just getting by on less than $2.00 a day[4,5].

Arguably, these factors had a direct impact on the enrollment rate to SBHF's nutrition program. One woman I interviewed, in my capacity as a Monitoring and Evaluation Intern, recounted she was still mourning her husband's recent death when the storms hit. The family was already struggling, with nine children to feed; the loss of her cattle and crops to floods further exacerbated things, effectively impoverishing and landing her in the recuperation program with her youngest child. The nutrition program enrolled an average of 3 children per day during the months of June to August 2009. Data for comparison with past year's enrollment rates is unavailable; however, anecdotal evidence suggests that 3 children per day entering the program is a significant increase.

A Look at the Nutrition Program

Saint Boniface Haiti Foundation (SBHF) has been in Fond des Blancs since 1983. Saint Boniface Hospital (SBH), established by the foundation, is the sole source of medical care in Fond des Blancs and the surrounding areas, substituting for national Ministry of Health in the rural commune of Aquin, Haiti. SBHF provides healthcare and fosters community development

projects such as bee farming, fish farming and micro-lending. Mobile outreach programs and satellite clinics help the organization reach out to a catchment area estimated at 250,000 people. SBHF's nutrition program is in partnership with USAID and Catholic Relief Services (CRS). There are different programs which provide supplemental dry rations to pregnant and lactating women, people living with HIV/AIDS, tuberculosis patients, and moderately to severely malnourished children aged 6 to 59 months. This paper focuses on the branch of the nutrition program directed at undernourished children aged 6 to 59 months, referred to as the Nutritional Recuperation Program throughout this paper.

Enrollment

Screening for enrollment to the nutritional recuperation program happens both at the level of the hospital when seeking care and the community at vaccination and growth monitoring posts. To satisfy the enrollment criteria a child needs to be between 6 and 59 months, moderately or severely malnourished (weight for age Z-score of -2 and -3 from the normal respectively) and have no medical complications such as marasmus, kwashiorkor or HIV/AIDS. The doctors at Saint Boniface Hospital (SBH) screen all their pediatric patients that meet the age requirement. If a child is hospitalized for severe marasmus, kwashiorkor, and/or severe anemia due to malnutrition, s/he is automatically referred to the program after clinical rehabilitation. At the community level, colvols (i.e. voluntary collaborators) head vaccination and growth monitoring posts. Colvols have the vaccination record and monitor the growth of all children in their communities. They provide services ranging from anthelmintic drugs, vitamins and micronutrients to vaccines depending on their experience and education. They refer children who are underweight for age to SBHF for enrollment to the recuperation program.

Program Logistics

Mothers bring their children to the center twice a month for weight tracking and supplemental dry ration. The children are divided into two groups that alternate every two Tuesdays to come to the center. They also receive at least one home visit by a community health nurse in the week they do not come to the center. Mothers are counseled on more nutritious food choices, hygiene practices, and how to spot danger signs in their children. The growth monitoring is done using weight for age (WFA) charted on the *Chemen Lasante* (Road to Health) card.

A normal Tuesday starts with the mothers showing up at the center at around 7:00 am. At 9:00 am, two community health nurses and one colvol start checking children's vaccination records, weighing the children and distributing vitamin tablets and micronutrient supplements. Mothers are asked to volunteer to prepare a meal for the group using ingredients from the donation food. While the meal is cooking, nurses counsel the mothers. After anthropometric measurements are taken and the children have eaten, mothers receive a ticket to go to the food depot. The whole session lasts about 4 hours.

Each mother receives 1.34 kg of vegetable oil, 5.00 kg of wheat/soy fortified blend (SFB), 2.78 kg beans/legumes, and 4.16 kg flour/wheat soy blend (WSB) per child enrolled each month. This

ration is calculated for a family of 5. Assuming the child gets 1/5 of this monthly ration per day that is about 357 kilocalories and 24 g of protein[1*]. Additionally, severely malnourished children get *Medika Mamba* (Plumpy'nut) donated by CRS and moderately malnourished children get *Akamil*, a 2:1 ratio of locally grown corn meal and black beans ground together on site that provides another 353 kilocalories and 13 g of protein per child per day. The *Akamil* is funded through private donation to SBHF. *Akamil* is meant to supplement the under-nourished child's diet and the foundation recommends that mothers cook it for the enrolled child only. However, because sharing is impossible to avoid, *Akamil* rations are also calculated for a family of 5.

Enrollment duration to the program is for 6 months after which the child is discharged whether s/he regains normal weight or not. These children qualify again for the program after 4 months. All the children get free healthcare at Saint Boniface Hospital while enrolled. The goal is for the children to graduate, as early as possible, having reached normal weight for age.

The Evaluation

From mid-July to end of August 2009, I volunteered with Saint Boniface Haiti Foundation as a Monitoring and Evaluation Intern. As part of my independent project, I observed and evaluated the nutritional recuperation program. During this evaluation, approximately 57 children were enrolled and 45 were being actively followed and 12 were marked absent. An initial observation made by the community health nurses and the volunteer nutritionist was that enrolled children appeared to be losing weight and they did not know why. The nurses believed mothers were selling the program food donation and feeding the *Akamil* to their pigs. They also believed the mothers were abusing the program because they feared losing program benefits if their children gained weight. My plan was to determine if the nurses' observations were well-founded and if not, whether there could be other reasons for the children not putting on weight.

Methods

I initiated a qualitative assessment of the program by reviewing the hospital files for the 45 enrolled children, attending ward rounds and staff meetings, participating in field visits to the children enrolled and joining vaccination trips. I also conducted informal interviews with the community health nurses to get their impressions on the program and what they thought was not working and why. With feedback from the staff, I put together a semi-structured questionnaire composed of 20 open-ended and close-ended questions aimed at assessing mothers' understanding of the program's purposes, the children's feeding habits, family structure, and how the supplemental dry rations and the *Akamil* were being used. I interviewed a total of 45 mothers and went on 15 home visits and vaccination trips combined. I looked up the hospital files for the first 26 children I interviewed and participated in ward rounds almost every weekday during the six weeks I was in Fond des Blancs.

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[*] [1] Calculations based on USAID Food Commodity Fact Sheets. Prepared by Ellen Boldon, RD, Nutritionist.

Findings

When I examined the tracking books at the end of July, 2009, there were 46 children enrolled; 28 girls and 18 boys. Thirty-three were moderately malnourished (PFA) and 12 were severely malnourished (PTFA); data was missing for 1 child. Forty-one were active, meaning the mothers came to the center for rations and of those, and 5 had been readmitted to the program. There were another 12 children marked absent because they had either been late or missed two consecutive meetings.

Physical Health Monitoring

One contribution to the poor performance of the Nutritional Recuperation Program that I was able to observe is a lack of physical health monitoring for the children. Mothers are required to bring the enrolled child to collect the food donation; however, nurses did not inquire about the children's physical health unless the mothers volunteered the information. Apart from distributing vitamin tablets, recording the children's weight and counseling the mothers, the nurses did not do any physical exam to check the children for fever, diarrhea or other infections.

De-worming Medication

Another contributing factor to the program's poor performance was a lack of monitoring for parasitic infections. Community health doctors reported that children referred by the hospital received anthelmintic drugs as part of standard pediatric treatment at SBH. A large proportion of the children enrolled, however, are referred by colvols. The nutrition program does not provide de-worming medications and anthelmintic drug distribution programs in the community target school age children.

Knowledge of Free Health Care Benefit

The children enrolled in the nutrition program have free health care benefits; however, mothers are not taking their children to Saint Boniface Hospital. My impression was that the mothers did not know that the foundation waived the cost of treatment because it is assumed they cannot pay. During home visits and interviews, several mothers confessed to giving herbal teas when their children had fever. This is a very common cultural practice in Haiti; nevertheless, one that can mask a serious infection in an under-nourished child.

Weight Monitoring

Measurement errors were common, mainly stemming from the weighing and recording methods used. The nurses would often read the graphed weight off the *Chemen Lasante*[*] card to write in the tracking books, a method that often led to an estimation of the child's actual weight for that week. The colvols did not always know how to properly tare the Salter hanging scales. One colvol in particular that I observed arbitrarily added 1.5 kg to compensate for the weight of the

[*] Vaccination card with a line graph which denotes three severity levels for nutrition; PTFA (severely malnourished), PFA (moderately malnourished), and normal weight. Weight tracking is done by putting a dot on the graph that stands for the child's age in months and weight in Kg.

sack instead of setting the scale to zero with the sack on. There were instances where a child was weighed with his/her clothes on the week before and without clothing on the next week and the nurses and colvols did not use a correction factor to account for the weight of the clothes.

Enrollment/Program Logistics

As the number of enrollees increased, nurses found it harder to visit everyone at home and some children went several weeks without a home visit. The nurses did not prepare in advance to receive the mothers at the center which often made for a long and tiring day for the children. There was not always enough time to prepare the group meal and everyone would go hungry. Mothers live far from the center and often have to pay a motorcycle taxi to come to meetings twice a month. If they have two children in the program they make the trip 4 times a month because the children are put in different groups. Weight monitoring is done in groups and mothers are chastised in public for their children not gaining weight, an experience that can be stigmatizing for mothers whose children consistently weigh below average for age. Nutritional counseling was often dull and repetitive from week to week. The nurses did not encourage the mothers' participation but mainly talked at them.

Children's Feeding Habits

During our interview, several of the mothers made sure to tell me that they reserved the *Akamil* exclusively for the child enrolled in the program as they were told. This would require preparing a meal for the enrolled child and another for the rest of the family. It is, however, possible that the moderately malnourished children are not being fed the *Akamil*. When I asked the mothers what foods their child loves best, some of the most common answers were corn meal, white rice, black bean puree, spaghetti, sweet potatoes and plantains. When asked what food they gave their children, the answers were similar to the foods the children love to eat. Only 2 out of the 45 mothers mentioned the *Akamil*. The impression was that mothers often did not cook a separate meal for the children. During the home visits, mothers consistently told me that they were not feeding the children the *Akamil*. Some of their reasons were it causes the children to have diarrhea; the children do not like it; it tastes bad. My impression was that the mothers' dislike for the *Akamil* had a lot to do with them not taking the time to prepare it properly at home because the children heartily eat *Akamil* when it is prepared for them at the center. Mothers consistently used the other dry ration donation food and let the *Akamil* go bad. Forty out 45 mothers I interviewed reported the *Akamil* lasted them 15 days to over a month when it fact it is meant to last 15 days or less, shared among a family of 5.

Family Structure

It is possible that the food donation is shared among too many people and the children are not getting enough food to eat. The dry ration donation is calculated for a family of 5 such that 1/5 goes to the enrolled child per day. However, enrolled mothers have an average of 3.7 children and the average family size is 6 people. Additionally, these families share food with an average of 5 other people, meaning at least 5 other people were invited to share the family meal per day. Forty out of the 45 women I interviewed felt it was an obligation to share the food they cook

with neighbors because those neighbors help and share food with them when in need. The children's daily ration decreases with the number of people sharing the family meal, thus, decreasing the child's daily calorie intake.

Recommendations

Saint Boniface Haiti Foundation's Nutritional Recuperation Program is doing its best to prevent pre-school children in Fond des Blancs and the surrounding area from succumbing to complications due to under-nutrition. However, the program is not meeting its goal of successfully rehabilitating these children. Data for 59 children discharged from the program in 2009 after an average length of participation of 6.3 months show that 76 percent were still underweight, 42 PFA and 3 PTFA[*]. As of October 2009, 71 children were enrolled in the program. The desired outcome is for the enrolled children to attain normal weight for age within the scheduled enrollment period. Between 6 and 59 months children will gain weight if they are fed unless there are underlying health complications. SBHF provides the food, however, parasitic infections leading to inadequate nutrient intake, insufficient food, and measurement errors can mask the outcome. SBHF should make changes to ensure that the program outcome is accurately being measured.

REDUCE MEASUREMENT ERRORS SO NURSES CAN ACCURATELY MONITOR THE CHILDREN'S PROGRESS. SBHF needs to properly identify the children who are underweight for age and accurately track their recovery while enrolled in the recuperation program. The program's success depends largely on accurate monitoring of the children's progress. Anthropometric measurements are susceptible to several factors such as "training, supervision, job aids, and performance of measurer and assistants, scale accuracy, precision, state of repair, ambient temperature, the child's age, mood, health, clothing, and caregiver support"[6]. The colvols and nurses currently use different techniques for weight tracking and they are susceptible to measurement error. They should check that the scales are precise and insist that mothers undress the children before weighing them or use a correction factor for the clothes. The children would appear to lose weight while enrolled if they are weighed with cloths at baseline and without later one. Additionally, SBHF should insist that weight tracking be done in the presence of a measurer and at least one observer to limit discrepancies in the recorded weight. The staff should record the children's weight first digitally before graphing it; that way, a child's weight is not subject to interpretation.

RETHINK AKAMIL DONATION. Akamil provides an additional 353 kilocalories and 13 g of proteins; however, SBHF is wasting resources if the children are not eating it. Other nutrition programs through Africa, Asia and Latin America have experimented with novel combination for complementary foods [7] in the same way Akamil is being used at Saint Boniface. Regardless

[*] PFA: poids faible pour âge (low weight for age). PTFA: poids très faible pour âge (weight very low for age). Data provided by Ellen Boldon, RD, Nutritionist. Analysis done October, 2009.

of these programs' success, one common theme throughout is that despite their willingness to try new foods, mothers are often not able to adopt these new recipes. The main reasons being, they have limited resources at home and often lack the time to properly prepare the food. [7]. Akamil needs to be cooked thoroughly for close to an hour; SBHF provides the food but not fuel to cook it; preparing two meals is time consuming and requires extra charcoal and ingredients. To overcome these limitations, SBHF should waive the requirement that *Akamil* be prepared only for the enrolled child and have mothers cook the food for all their children while advocating larger portion for the under-nourished child. Walia et. al, in their study in India, found that mothers were often deterred from using complementary foods because of the psychological trauma of feeding one child and not all their children[8]. SBHF is also asking Haitian mothers to withhold food from their other children. The Nutritional Recuperation Program already has some great interventions, such as the cooking demonstrations at the center every Tuesday, which SBHF could revamp to market *Akamil* as a family meal. SBHF needs to redesign the Akamil donation taking into account that the enrolled child is an integral part of a family system. Short of discontinuing Akamil donation, the foundation should encourage Akamil for the whole family thus reducing waste and increasing the chance of the children gaining weight.

MONITOR THE CHILDREN'S PHYSICAL HEALTH. Under-nutrition can weaken a child's immune system and render him/her susceptible to infections. Conversely, infections can reduce nutrient absorption and impede weight gain even when the child is fed [9]. Pneumonia, diarrhea, inflammation as a result of minor accidents and fevers, are just some of the factors that can reduce a child's weight gain and it is not uncommon for the weight to remain low for a long time [10]. It is thus important to monitor the children enrolled in the recuperation program for infections, parasitic or others and make sure they are in good physical health. Each child should get at least two physical examination at Saint Boniface Hospital while enrolled. The nurses need to be more proactive in their interactions with the mothers by actively probing the mothers for an accurate history of the children's health in the week they do not come to the center.

ACCOMMODATE THE MOTHERS' INDIVIDUAL LIMITATIONS FOR NOT MEETING THE PROGRAM OBJECTIVES. The mothers are divided into two groups which alternate every two Tuesdays to come to the center for rations. If a mother has two kids in the program the children are split between the two groups and that mother has to come to the center four times a month. Many of these mothers live a long distance away from the hospital and if they are late, they are recorded absent. Repeated absenteeism is grounds for dismissal from the program. SBHF should consider putting mothers with more than one child in the same group and make absenteeism judgment on a case by case basis. Counseling should be done in private because chastising the mother in public for her child not gaining weight is stigmatizing and can have a positive effect on the rate of absenteeism.

EMPLOY COLVOLS AS GATEKEEPERS. Immediate referral is imperative if the child is severely underweight for age; however, if a child is barely below normal weight for age, a colvol could follow up on that child, initiate food counseling and monitor the child's weigh in the community for a short time. The colvol would need to report to the community health nurses

who would visit this child at home to make sure there are no complications. This scheme would guarantee that mothers who live too far from the center are spared the travel cost but benefit from the nutrition counseling part of the program, if not the food donation.

ENROLL SUCCESSFUL MOTHER/CHILD PAIRS AS COUNSELORS. Positive deviance has been defined as "success in spite of hardship" [11,12] and involves identifying 'positive deviants', individuals who "share the same socioeconomic characteristics as their peers/other members of the community and yet manage to find ways to overcome barriers and actually practice positive behaviors without external interventions"[12]. First employed in Leogane, Haiti in the early 1970s to improve nutritional outcomes, positive deviance has since been incorporated in different nutritional programs in countries around the world such as Guatemala, Vietnam and India [11-14] with great success. SBHF's recuperation program seems to have a positive deviance component to it, visible in the fact that one mother volunteers to prepare a meal at the center during each visit. However, SBHF could put more effort into identifying those mothers whose children are doing well and enroll them as counselors to the other mothers. The interviews revealed that a small number of the mothers cooked *Akamil* at home and even reported that their children liked eating. SBHF could recruit these positive deviant mothers to do cooking demonstrations for the other mothers and talk about their experiences and why *Akamil* works for them. Such a strategy would help to eliminate stigma and create a channel where mothers can openly discuss what they are doing and get help.

From Short-Term Cure to Prevention

Food choices play a significant role in a child getting the nutrients s/he needs to grow up healthy. The Haitian diet is not diverse and the economic situation limits poor families' buying power. Many of the mothers told me that their children would be well fed if they had the means; however, there was a general sense of powerlessness leading the women to describe under-nutrition as a common occurrence or even a genetic condition; "my children never got big, it must be blood". The nutritional recuperation program is not a long term food security for these mothers, and the foundation should be careful as to not have these women be dependent on the food donation; nevertheless, SBHF needs to foster sustainable solutions to empower the mother to provide for their children after they've graduated from the program. SBHF could help these mothers establish a steady source of income by fostering small business initiatives through enrollment in the micro-lending program. Almost all of these women have a small plot in their backyards as is customary in the rural parts of Haiti; SBHF could encourage home gardening which can lead to more diverse food and vegetable consumption and greater vitamin A and C intake (reference). There is evidence that programs that made use of positive deviance strategies had a sustained nutritional status improvement up to 4 years after program completion [12,15,16] and that mothers often passed on what they learn to the next generation [17]. SBHF should consider these options because they could help curtail recidivism.

Constituencies

Saint Boniface Haiti foundation has been in Fond des Blancs since 1983. SBHF has since expanded its services to meet the needs of the community, offering services such as HIV/AIDS and tuberculosis prevention and treatment which are more demanding and pay for a larger portion of the staff's salaries. The foundation, however, continues to function with limited staff and funding for some programs. Nutrition for example, does not have a lot of funding and the children enrolled are not HIV positive nor do they have malaria or tuberculosis. It is nevertheless important that these children receive attention; they represent the risk pool for infections because of their nutritional status [18]. SBHF receives aid for the nutrition program from Catholic Relief Services (CRS), USAID and private donations. Any decision the foundation takes will have to be in accordance to these agencies and donors' guidelines for enrollment duration and food distribution. My recommendation will necessitate that the foundation petitions CRS and USAID for larger donation food rations to account for larger family sizes in Fond des Blancs. I anticipate that the negotiations will be difficult, especially because SBHF just got CRS to increase the number of rations from 35 to 71 to account for increased enrollment to the Nutritional Recuperation Program; however, the task is not impossible. After all, these changes to the program can only support the donors' interests in seeing the children enrolled successfully rehabilitated and resources well allocated.

My recommendations will translate into more work for the nurses who already have a lot on their plate and the colvols who are just volunteers and don't get paid. The colvols can help alleviate the workload for the nurses; however, SBHF should be careful in asking them to take on more responsibilities. Some of the colvols have been doing the work in their communities for years; they receive a small stipend but with more responsibilities, they might start asking for better remuneration. SBHF could use a combination of honorarium and non-financial methods [19] such as T-shirts bearing the foundation's logo, or even a portion of the food donation, as a means of compensating the colvols and encouraging their participation and their willingness to take on more responsibilities.

Conclusion

The reasons for malnutrition in pre-school children are often complex, involving social, political and economic causes. While SBHF cannot address all of these causes, the foundation can guarantee that their chosen intervention yields the intended results. Currently, close to 70 percent of the children who are discharged from the nutrition program are still underweight for age. The Nutritional Recuperation Program makes a critical contribution to the people of Fond des Blancs. The program's impact on the community will be even more significant if its weaknesses are addressed. Some of my recommendations focus on the operational components that can be tackled now with existing resources. I am, however, conscious that SBHF will need more funding should they choose to implement a positive deviance inquiry or provide larger rations to larger families. Many nutrition programs throughout the world that target pre-school children are

successful because they use a comprehensive approach to nutritional rehabilitation; they combine immunization and periodic de-worming with supplemental dry rations, maternal education and counseling and accurately monitor the children's progress. These services are already being offered at Saint Boniface Hospital under different programs; SBHF can pool these resources and fashion a comprehensive package for the children enrolled in the Nutritional Recuperation Program.

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